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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/802,121	03/16/2004	Robert W. McCullough	QI21141	3527
32912	7590	12/02/2005		
HAYWARD A. VERDUN, LLP P.O. BOX 698 CENTERVILLE, LA 70522			EXAMINER JAGAN, MIRELLYS	
			ART UNIT 2859	PAPER NUMBER

DATE MAILED: 12/02/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/802,121

Applicant(s)

MCCULLOUGH ET AL.

Examiner

Mirellys Jagan

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 19 September 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-33 is/are pending in the application.
- 4a) Of the above claim(s) 22-28 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 and 29-33 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 March 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 1/5/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Claims 22-28 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 9/19/05. In addition, Applicant's traversal of the election of species requirement is persuasive. Accordingly, the election of species requirement is withdrawn.

The restriction requirement with respect to claims 22-28 is still deemed proper and is therefore made FINAL.

### *Drawings*

2. Figures 4 and 5A-5D should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1-6, 10-16, 18, and 30-33 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 5,562,345 to Heyman et al [hereinafter Heyman].

Heyman discloses a method of testing a structure comprising:

depositing energy within at least a portion of a volume of the structure;

detecting transient temperatures at a surface of the structure caused by diffusion of the energy using an IR detector;

automatically analyzing the detected transient temperatures by a computer processor;

determining whether a flaw is present in the structure;

recording a location of one or more detected flaws in the structure; and

providing a visual indication when a flaw is detected;

wherein the deposited energy is induction heating; the diffusion of the deposited energy forms a pattern; the frequency of the deposited energy is varied to produce a resonating effect within the structure; the deposited energy includes multiple energy frequencies; and the structure includes a metallic portion and a non-metallic portion, i.e. two dissimilar materials (see column 1, lines 25-31; column 3, line 26-column 4, line 2; column 5, lines 10-17 and 46-49).

*Claim Rejections - 35 USC § 103*

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyman in view of U.S. Patent 6,394,646 to Ringermacher et al [hereinafter Ringermacher].

Heyman discloses a method having all of the limitations of claims 7-9, as stated above in paragraph 4, except for the IR detector being an IR video camera.

Ringermacher discloses that it is known in the art to use an IR video camera in thermography techniques to test a composite structure for flaws. The IR video camera is useful since it records and stores successive thermal images of the structure over time to visually obtain the presence of the flaw (see column 2, lines 36-52).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Heyman by using an IR video camera as the IR detector since Ringermacher discloses that IR video cameras are commonly used in the art as IR detectors in thermographic testing of materials for recording and storing the presence of flaws.

7. Claims 17 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyman in view of the prior art disclosed by Applicant on paragraph 63 of the specification [hereinafter Prior Art].

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Heyman discloses a method having all of the limitations of claims 17 and 19, as stated above in paragraph 4, and further discloses that thermographic techniques are used in the art for testing flaws in laminated structures such as those used in the aerospace industry, i.e., the laminated structure is an aircraft (column 1, lines 25-31).

Heyman does not disclose the material of the aircraft being comprised of a metal, a boron-epoxy skin, and a honeycomb panel.

It is known in the Prior Art that a typical composite structure used on some major aerodynamic surfaces, such as an F-14 and F-15 fighter aircraft, is made up of a metal, a boron-epoxy skin, and a honeycomb panel.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Heyman by replacing the structure with a structure as known in the Prior Art, since the prior art teaches that the structure is typically used in the art as the structure of an aircraft.

8. Claims 20 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heyman and the Prior Art, as applied to claims 17 and 19 above, and further in view of U.S. Patent 5,709,469 to White et al [hereinafter White].

Heyman and the Prior Art disclose a method having all of the limitations of claims 20 and 21, as stated above in paragraph 7, except for the structure being the wing of the F-15.

White discloses that the wing of an aircraft is an important structure to thermally test for flaws since it experiences stress during flight and therefore is likely to incur flaws (column 1, lines 18-27 and 40-42; and column 2, lines 25-31).

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It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of Heyman and the Prior Art by testing the wing of the aircraft since White teaches that the wing is a location of an aircraft that is likely to incur flaws during flight.

### *Conclusion*

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents disclose thermography using inductive heating:

U.S. Patent 6,690,016 to Watkins et al

U.S. Patent 5,934,805 to Endo et al

U.S. Patent 5,069,005 to Hovland et al

U.S. Patent 4,109,508 to Fukuyama

U.S. Patent 4,412,713 to Nakasugi et al

Japanese Patent 03183940 to Yoshida

Japanese Patent 04013956 to Shirohashi et al

Japanese Patent 53029183 to Onishi et al

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mirellys Jagan whose telephone number is 571-272-2247. The examiner can normally be reached on Monday-Friday from 11AM to 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diego Gutierrez can be reached on 571-272-2245. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MJ  
November 22, 2005



**Diego Gutierrez**  
**Supervisory Patent Examiner**  
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